

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A microlens device, comprising:
a substrate having a first photo sensor and a second photo sensor located therein;
a dielectric layer located over the substrate;
a first microlens located over the substrate dielectric layer and including a first substantially convex portion substantially aligned over the first photo sensor;
a second microlens located over the dielectric layer and including a second substantially convex portion substantially aligned over the second photo sensor, wherein the first and second microlenses are laterally separated by a gap exposing a substantially planar surface of the dielectric layer;
a dielectric film located over and conforming to the first microlens and the second microlens, the dielectric film also contacting the portion of the dielectric layer surface that is exposed in the gap; and
a protective layer located over the dielectric film.
2. (Currently Amended) The microlens device of claim 1 ~~further comprising a~~ wherein the first and second microlenses are discrete elements not integral to the dielectric layer ~~interposing the microlens and the substrate.~~
3. (Currently Amended) The microlens device of claim 1 wherein the dielectric film comprises a first composition and the ~~microlens comprises~~ first and second microlenses each have a second composition that is substantially similar to the first composition.
4. (Currently Amended) The microlens device of claim 1 wherein the dielectric film has a first refractive index and the ~~microlens has~~ first and second microlenses each have a second refractive index different than the first refractive index.
5. (Original) The microlens device of claim 1 wherein the dielectric film is an anti-reflective film.
6. (Currently Amended) The microlens device of claim 1 wherein the ~~microlens comprises~~ the first and second microlenses each comprise a polymer material.

7. (Currently Amended) The microlens device of claim 1 wherein the ~~microlens comprises the~~ first and second microlenses each comprise a dielectric material.

8. (Original) The microlens device of claim 1 further comprising a color filter layer located over the protective layer.

9. (Original) The microlens device of claim 1 wherein a fill factor corresponding to a ratio of light incident on the microlens device and the photo sensor is at least about 50%.

10. (Original) A microlens array, comprising:
a substrate having a plurality of photo sensors located therein;
a microlens layer comprising a plurality of microlenses located over the substrate, each of the plurality of microlenses including a substantially convex portion substantially aligned over a corresponding one of the plurality of photo sensors, wherein the plurality of microlenses are separated by a plurality of gaps; and
a dielectric film located over and conforming to the microlens layer and substantially filling the plurality of gaps.

11. (Original) The microlens array of claim 10 further comprising a protective layer located over the dielectric film.

12. (Currently Amended) The microlens array of claim 10 further comprising a dielectric layer interposing the microlens layer and the substrate, wherein the plurality of microlenses are not integral to the dielectric layer, wherein each of the plurality of gaps separating each of the plurality of microlenses reveals a portion of a surface of the dielectric layer, and wherein the dielectric film contacts the dielectric layer surface through each of the plurality of gaps.

13. (Original) The microlens array of claim 10 wherein the dielectric film comprises a first composition and the microlens layer comprises a second composition that is substantially similar to the first composition.

14. (Original) The microlens array of claim 10 wherein the dielectric film has a first refractive index and the microlens layer has a second refractive index different than the first refractive index.

15. (Original) The microlens array of claim 10 wherein the dielectric film is an anti-reflective film.

16. (Original) The microlens array of claim 10 wherein the microlens layer comprises a polymer material.

17. (Original) The microlens array of claim 10 wherein the microlens layer comprises a dielectric material.

18. (Original) The microlens array of claim 10 further comprising:
a protective layer located over the dielectric film; and
a color filter layer located over the protective layer.

19. (Original) The microlens array of claim 10 wherein a fill factor corresponding to a ratio of light incident on the microlens array and the plurality of photo sensors is at least about 50%.

20. (Currently Amended) A method of manufacturing a microlens array, comprising:
providing a substrate having a plurality of photo sensors located therein;
forming a dielectric layer over the substrate, the dielectric layer having a surface opposite the substrate;

forming a microlens layer comprising a plurality of microlenses ~~over~~ on the substrate dielectric layer surface, each of the plurality of microlenses including a substantially convex portion substantially aligned over a corresponding one of the plurality of photo sensors, wherein the plurality of microlenses are separated by a plurality of gaps that each reveal a portion of the dielectric layer surface; and

forming a dielectric film ~~over and conforming to~~ on the microlens layer and substantially filling contacting the dielectric layer surface through each of the plurality of gaps.

21. (Original) The method of claim 20 further comprising forming a protective layer over the dielectric film.

22. (Currently Amended) The method of claim 20 ~~further comprising forming a~~ wherein the microlens layer is not integral to the dielectric layer ~~interposing the microlens layer and the substrate.~~

23. (Original) The method of claim 22 wherein forming the microlens layer comprises:
depositing a microlens material layer over the dielectric layer;
patterning the microlens material layer; and
heating the patterned microlens material layer to form the plurality of microlenses.

24. (Original) The method of claim 23 wherein the microlens material layer comprises a polymer material.

25. (Original) The method of claim 20 wherein forming the microlens layer comprises:
depositing a microlens material layer over the substrate;
forming a mask over the microlens material layer; and
etching the microlens material layer employing the mask.

26. (Original) The method of claim 25 wherein the microlens material layer comprises a dielectric material.

27. (Original) The method of claim 20 further comprising:
forming a protective layer over the dielectric film; and
forming a color filter layer over the protective layer.